REMARKS

Claims 34-88 are currently pending in the instant application. Claims 34-41, 44-46 and 75-88 are rejected under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,568,386 (*sic*) (5,568,385) (hereinafter, "Shelton"). Claims 42-43 and 47-74 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shelton. In addition, Figures 1 and 9 have been amended in order to comply with 37 C.F.R. §§1.84(p)(5) and 1.84(p)(4), respectively.

The Shelton Reference

Shelton discloses a software system for collecting and displaying weather information received at multiple remote weather stations (hereinafter, "RWS") 38, 42, 46 and at a base weather station (hereinafter, "BWS") 1 on a base computer (hereinafter, "BC") 4. (*See generally, Shelton*). BWS 1 is located at or near BC 4 (preferably connected thereto by coaxial cable or other direct hookup), while RWS 38, 42, 46 are positioned at locations remote to BC 4 (preferably connected via modems 39, 43, 47 and voice grade telephone systems 25, 27, 29) (*Shelton, Col. 6, lines 23-38*). Weather data and other information collected at RWS 38, 42, 46 is received at the BC 4 modem before joining the information from BWS 1, and data flow from RWS 38, 42, 46 is thus allowed to continue even after power is temporarily lost at one of the remote computers of RWS 38, 42, 46 (*Id. at lines 38-45*). In addition to numerical and textual data, stored or real-time images being collected with a video camera at the same time as the weather data is being collected can be communicated to viewers 32, 34, 36; the weather data being superimposed on the images.

As the operating system of BC 4 is Windows®-based (or its equivalent), weather data collected from BWS1 and RWS 38, 42, 46 is decoded and "manipulated" into separate files or subsets for display in a graphical format (*Id. at Col, 7, lines 1-9*). Each file consists of some subset of information of the weather collected by the computer. (*Id., lines 14-16*). BC 4 sends the screen display data as an output signal 14 to the monitor 10 and an NTSC/Genlock signal processor 14, which converts the screen display data signal 14 into a television broadcast quality video signal 18. (*Id., lines 21-25*). Television broadcast quality video signal 18 is then routed to conventional television broadcast equipment such as a master control switcher 20 which accepts video signals from other sources and selects which of various signals 19 will be transmitted to viewers 32, 34, 36. (*Id., lines 28-36*). The image thus transmitted to the viewers 32, 34, 36 is the image appearing on the monitor 10 of BC 4. (*Id., lines 36-38*).

I. Traversal of the Rejection of Claims 34-41, 44-46, and 75-88 under 35 U.S.C. § 102(b)

As set forth above, claims 34-41, 44-46, and 75-88 have been rejected under 35 U.S.C. §102(b). This rejection is respectfully traversed for at least the following reasons

A. Shelton Does Not Teach or Disclose the Integration of Weather Information into Television Broadcast Signals Originating from and Related to a Plurality of Geographic Locations, and Cannot Do So, Particularly when Viewed in Light of the State of Modem Technology at the Time

The Examiner states that, *inter alia*, Shelton teaches that the weather data signals disclosed in Shelton may be superimposed over video of the region (from which the weather data is collected), thus meeting Applicant's claimed limitation of the integration and superimposing "on the television broadcast related to the first geographic location," and cites Shelton at Col. 3, lines 20-35 as support. (*Office Action dated November 19, 2003*, at p. 5). While Applicant agrees that Shelton briefly and vaguely alludes to transmission of video in his *Summary of Invention*, further discussion in Shelton, as well as the state of modem technology at the time, belie this allusion.

More specifically, Shelton states at Col. 3, lines 20-35:

> *The system includes the ability to collect numerical, textual data, graphs, and pictures; to superimpose the numerical, textual and graph data on said pictures; and to communicate the superimposed image to end users. In this case, pictures can be stored images or real time images being collected with a video camera at the same time as the weather data is being collected. In this fashion, the system is capable of providing end users with high information content weather images, for example, temperature, rainfall, wind speed and barometric data (in alphanumeric and/or graph expression) superimposed upon a satellite picture of the region in question, or some other picture of interest (e.g., real time or taped video of the rain falling; wind blowing snow, rain or trees; snow drifts; snow control teams in action; hurricanes; tornados; earthquakes; etc.)*

Thus there is only a brief and vague reference to transmission of real-time video related to the weather at one of the RWS 38, 42, 46. However, there is no further teaching or suggestion of transmission of real-time or taped video information. In fact, the only other reference to the transmission of pictorial information may be found at Col. 13, lines 33-40, where Shelton discusses in conjunction with Figure 10, the selection for display of "*bit-map image[s] of frozen video, background or pattern.*" (Emphasis added). These photos 1-9 may be one of "*nine different photos, typically satellite and ground level photos of the particular weather station site,*" and can "*be shown separately, or they can provide background for the screens of window 208 [the window that sets for the screen display of current and/or historic weather conditions from RWS 38, 42, 46].*" (*Shelton,*

Col. 13, lines 33-40 and *Col. 12, lines 61-64*). As it is the displayed screen information that is transmitted to the viewers 32, 34, 36 (*See supra* and *Col. 7, lines 21-25*), it is respectfully submitted that this is what Shelton meant by the vague reference to "real-time video" - i.e., a bit-map image of frozen video.

In addition, even as Shelton does not clearly teach or disclose the transmission of television broadcast signals originating from and related to a plurality of geographic locations, one may also look to the state of technology at the time Shelton's application for patent was filed. When this is done, it can clearly be seen that, not only does Shelton not teach this important limitation, but that the state of technology at the time did not, and could not, support such a feature in Shelton's system architecture. More specifically, modem technology was not advanced enough to support transmission of television broadcast signals from Shelton's RWS 38, 42, 46.

Although briefly alluding to cellular, short wave and other wireless communications[1] in his *Summary of Invention* at Col. 3, lines 3-7, Shelton's preferred means for remote communication is via modem. This can be gleaned from numerous locations throughout the specification as well as the drawings. In particular, as noted above, Shelton recites a distinct preference for use of a modem, as this will allow for continuance of data flow despite temporary power loss at any of RWS 38, 42, 46 (*Shelton, Col. 6, lines 38-52*). However, in 1994, the year that Shelton's application for patent was filed, available modem speed was only as much as 28.8 kbps or perhaps 33.6 kbps (the 28.8 kbps modem having been invented in 1994; the 56.6 kbps modem in 1996) (*See ,e.g.,* http://inventors.about.com/library/inventors/blmodem.htm and http://inventors.about.com/gi/dynamic/offsite.htm?site=http://www.dementia.org/%7Ejulied/tele2100/intro.html *as set forth in Appendix B, pp. B1-B2*) It will be appreciated that to transmit television broadcast signals, or at least real-time high-quality moving images, the modem speed would need to be approximately on the order of at least 25 Mbps (*See, e.g.,* http://www.iee.org/Events/Lectrs/Faraday/2001/pltwtt.pdf, *as set forth in Appendix B, p.B3).* Such a transmission speed would require the use of cable modems or the like. And although Shelton clearly does not envision the use of a cable modem (specifically noting a "conventional modem/telephone hookup" – *see, e.g., Abstract* and *Figure 1),* reliable high-speed cable modems were not commercially available until sometime at the end of 1995 (*See, e.g.,* http://www.cabledatacomnews.com/nov98/nov98-1.html, *as set forth in Appendix B, pp. B4-B5),* and thus not available to Shelton.

[1] In addition, there is no evidence that the other means of wireless communications alluded to by Shelton could support real-time high-quality moving images.

For the foregoing reasons alone, Shelton does not teach or anticipate independent claims 34 and 75 of Applicant's application, and these claims are therefore patentable over Shelton under 35 U.S.C. §102. As claims 35-41, 44-46, and 76-88 depend directly or indirectly therefrom, they too are patentable over Shelton under 35 U.S.C. §102. In addition many of the limitations set forth in these dependent claims provide additional patentability over Shelton; these will be discussed in the forthcoming paragraphs after IB.

B. Shelton Does Not Teach or Disclose Means for Selecting an Output Television Signal as Set Forth in Applicant's Claimed Invention

In addition to the foregoing reasons, claims 34-41, 44-46, and 75-88 are patentable under 35 U.S.C. §102(b), because even if Shelton could be said to teach or disclose the transmission of television broadcast signals originating from and related to a plurality of geographic locations and the integration of data representing weather parameters from those locations, Shelton does not teach or disclose Applicant's claimed "output television signal selecting means" limitation.

The Examiner contends that users may select from real-time information at a location of their choice as taught in Col. 2, lines 58-65, "meeting the claimed switching and selecting means for the icon weather signal at a first and second geographic location." (*Office Action dated November 19, 2003* at page 5). While it is not entirely clear which of the system elements of Shelton the Examiner is referring to for teaching Applicant's "production switching means" and "output television signal selecting means," a review of Figure 1 in view of Applicant's claim 34, for example, clearly shows that Shelton does not teach either limitation. More specifically, claim 34 recites in relevant part:

> *production switching means for receiving the television signals representing the weather parameters and the television broadcast signals, and for combining the television signals representing the weather parameters and the television broadcast signals so that first icon signals representing first weather parameter signals sensed at a first geographic location are combined with first television broadcast signals from the first geographic location, and so that second icon signals representing second weather parameter signals sensed at a second geographic location different from the first geographic location are combined with second television broadcast signals from the second geographic location; and,*
>
> *means coupled with the production switching means for selecting an output television signal corresponding to either the first icon signals representing the first weather parameter signals sensed at the first geographic location combined with the first television broadcast signals from the first geographic location or the second icon signals representing the second weather parameter signals*

sensed at the second geographic location combined with the second television broadcast signals from the second geographic location. (Serial No. 09/604,824, Claim 34)(Emphasis added)

Referring to Figure 1 of Shelton along with the accompanying explanation in the specification, the only "output television signal" of Shelton that could correspond to the limitation in Applicant's claimed invention is "television broadcast quality video signal 18." (Screen display signal 14 clearly is not equivalent to an "output television signal" since Shelton teaches that it must be conditioned in a conventional NTSC/Genlock signal processor 16 to create a "television broadcast quality video signal 18.")

Using this a starting point and referring to the specification of Shelton, it is understood that television broadcast quality video signal 18 then is routed to a master control switcher 20 which accepts video signals from various other sources (not shown) and selects which of these signals 19 will be broadcast to viewers at any given instant. (*Shelton, Col. 7, lines 22-33*). Thus the master control switcher 20 can only switch between the video signal 18 and other *non-system* video signals. As the television broadcast quality video signal 18 simply contains the display screen information to be transmitted to viewers, it can only logically show information from one location superimposed on a pictorial image from that one location. Unlike Applicant's invention, the master control switcher 20 of Shelton therefore cannot switch between the image information from the first geographic location with first weather icon overlay and the image information from the second geographic location with second weather icon overlay. As a result, even were one to ignore the fact that Shelton does not teach the transmission of television broadcast signals originating from and related to a plurality of geographic locations and the integration of data representing weather parameters from those locations, it also does not teach at least the "output television signal selecting means" of Applicant's claimed invention – e.g., as set forth in claim 34. Similarly, Shelton does not teach at least the "output television signal selecting" step of claim 75.

For the additional reasons set forth in this section, Shelton does not teach or anticipate independent claims 34 and 75 of Applicant's application, and these claims are therefore patentable over Shelton under 35 U.S.C. §102. As claims 35-41, 44-46, and 76-88 depend directly or indirectly therefrom, they too are patentable over Shelton under 35 U.S.C. §102. In addition, many of the limitations set forth in these dependent claims provide additional reasons for patentability over Shelton. For example, with respect to claim 41, the Examiner states that Shelton's real-time monitoring (as discussed at Col. 3, lines 35-41) is integrated into changing broadcast signals as they are received. (*Office Action dated November 19, 2003*, p. 6) Even ignoring again that the received signals in Shelton are not "television broadcast signals," Col. 3, lines 35-41 of Shelton merely discusses real-time monitoring of data, further processing of that data, and communication of

that data to various end users. Shelton does not teach continuously monitoring over periods of time the weather parameters prevailing at each of the plurality of geographic locations, so that changes in the weather parameters can be **matched** with changes in the television broadcast signals.

II. Traversal of the Rejection of Claims 42-43 and 47-74 under 35 U.S.C. §103(a)

Claims 42-43 and 47-74 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Shelton in view of various Official Notices taken by the Examiner. This rejection is respectfully traversed for at least the following reasons.

A. Claims 42-43 and 47-74 Are Patentable Over Shelton for the Reasons Set Forth Above with Respect to Claim 34

Claims 42-43 and 47-60 depend directly or indirectly from claim 34. Neither Shelton nor any of the various Official Notices taken by the Examiner (even if accepted by Applicant) teaches nor suggests the transmission of television broadcast signals originating from and related to a plurality of geographic locations, nor the "output television signal selecting means" limitation of claim 34. For these reasons alone, claims 42-43 and 47-60 are patentable under 35 U.S.C. §103(a) over Shelton and any of the various Official Notices. In addition, many of the limitations set forth in these dependent claims provide additional reasons for patentability.

The examiner states that claim 61 recites similar limitations as claims 34 and 47. As set forth above with respect to claim 34, Shelton does not clearly teach or disclose the transmission of television broadcast signals originating from and related to a plurality of geographic locations, and the state of modem technology at the time did not, and could not, support such a feature in Shelton's system architecture. More specifically, modem technology was not advanced enough to support transmission of television broadcast signals from Shelton's RWS 38, 42, 46. Examiner does not address either of these points in his rejection of claims 61-74. As neither Shelton nor the various Official Notices taken by the Examiner teach or suggest this claimed limitation, claim 61 is patentable under 35 U.S.C. §103(a). As claims 62-74 depend directly or indirectly therefrom, they too are patentable under 35 U.S.C. §103(a). In addition, many of the limitations set forth in these dependent claims provide additional reasons for patentability over Shelton, as will be addressed below.

B. One Skilled in the Art Would Not Look to Modify Shelton's System to Include Time-Multiplexing Means (Claim 42)

Although claim 42 is patentable over Shelton and the art cited by Official Notice for the reasons set forth above, Applicant additionally submits one skilled in the art would not look to modify Shelton's system to include time-multiplexing means.

The Examiner states with respect to claim 42 that, while the "*time-multiplexing means for establishing communications between the monitoring station and the base station*" is not taught by Shelton, TDMA communications were notoriously well known in the art. (Office Action dated November 19, 2003, p. 7). However, referring back to claim 24 (from which claim 42 ultimately depends), it can be seen that the "time-multiplexing means" of claim 42 are part of the "*means for transmitting the weather parameter signals from the monitoring station.*" As the Examiner also contends that Shelton is capable of transmitting through the same transmitting means the real-time video of the region (*Id.* at p. 5), this would require that the real-time video of the region be transmitted through the same time-multiplexing means. However, while TDMA communications may have been known at the time of Applicant's invention, the transmission of real-time video through TDMA was not available at the time of Applicant's invention and, in fact, is only recently deemed available with the advent of 3G networks (*see, e.g., http://www.businessweek.com/bwdaily/dnflash/dec2000/nf2000125_488.htm, as set forth in Appendix B, pp.* B6-B9). For this reason, one skilled in the art at the time of Applicant's invention would not look to modify Shelton's system to include "time-multiplexing means." Claim 42 is thus patentable over Shelton in view of the then known level of TDMA communications technology.

C. The Examiner Improperly Relies on Official Notices to Reject at least Claims 49-51, 59-60, 63-65, and 73-74

Applicant notes that the Examiner relies heavily on numerous Official Notices to reject claims 42-43 and 47-74. According to the Manual of Patent Examining Procedure, "while 'official notice' may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. (*M.P.E.P., §2144.03*). Applicant respectfully traverses the Examiner's taking of Official Notice with regard to claims 49-51,59-60, 63-65 and 73-74, and requests that he provide documentary evidence in the next Office action should the rejection be maintained.

In particular, the Examiner states that "*it would have been obvious for one skilled in the art at the time of the invention to modify the system and methods of Shelton by using poll-select protocol interrupt logic....*"

(*Office Action dated November 19, 2003*, pp. 9 and 10). Shelton's preferred embodiment is a conventional modem/telephone network hookup, and only a brief and vague reference is made to wireless communications. (*See, e.g., Abstract* and *Shelton, Col. 3, lines 3-7*). Applicant notes that, as set forth in his specification at p. 9, that while the poll-select protocol developed by Burroughs (a predecessor company of assignee) is especially suitable to the use of radio modems, radio modems may also offer their own multi-point protocols. In view of these facts, Applicant submits that the facts taken by the Examiner are not "capable of such instant and unquestionable demonstration as to defy dispute" (*In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). As a result, Applicant respectfully traverses the Examiner's taking of Official Notice with regard to claims 49-51, 59-60, 63-65 and 73-74, and requests that he provide documentary evidence in the next Office action should the rejection be maintained.

In view of the foregoing amendments and for the above-stated reasons, Applicants submit that claims 34-88 are allowable over the prior art of record, and that the application is in condition for allowance. It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests prompt and favorable consideration of this Response and reconsideration of the application on whole. An early Notice of Allowance is also respectfully solicited.

[THIS SPACE INTENTIONALLY LEFT BLANK]

Should the Examiner believe that personal communication would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (215) 986-5169.

Respectfully submitted,

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January 19, 2004

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Modem

Tomlinson invented email in 1972.

Digital modems developed from the need to transmit data for North American air defense during the 1950s. Modems were used to communicate data over the public switched telephone network or PSTN. Analog telephone circuits can only transmit signals that are within the frequency range of voice communication. A modem sends and recieves data between two computers. Modem stands for **modulate/demodulate**.

In 1962, the first commercial modem was manufactured - the Bell 103 by AT&T. The Bell 103 was also the first modem with full-duplex transmission, frequency-shift keying or FSK, and had a speed of 300 bits per second or 300 bauds.

The 56K modem was invented by Dr. Brent Townshend in 1996.

History of Modems
Robert Lucky invented the automatic adaptive equalizer in 1965 at Bell Laboratories.

The Man behind the Modems
Brent Townshend, the man who dreamed up the idea for 56K bit/sec modems.

Developer receives patent for PCM modems

Introduction and History of Modems

Introduction

The modem is a device used in affecting communications between computers across telephone lines. The word **modem** is derived from the combination of the words modulation and demodulation. For it is these two functions that the modem performs. It takes digital data from a computer and modulates it into an analog signal to be passed along the telephone line. At the other end, another modem demodulates the signal back to the original digital form so the receiving computer can interpret it.

History

It was in the 1950s that the first modems were being developed. There was a need to transmit data for North American air defense, so efforts were made to accomplish the goal of data transfer across the existing telephone wires. The air defense was using modems by the end of the 1950s, but the first commercial device was not available until 1962. It was called the Bell 103, by AT&T. This first modem allowed full-duplex transmission, and boasted data rates up to 300 bits per second. Shortly after the Bell 103, there came the Bell 212, which reached speeds of 1200 bits per second. It also employed a method of modulation called phase-shift keying (PSK). This was a step up from the frequency-shift keying (FSK) method that the Bell 103 employed.

Over the next fifteen years, the efforts were to make the modems transmit data at a higher rate. In order to accomplish this, the telephone system required some improvement. As it was, due to mutual interference of signals being attenuated at various rates through the system, there was smearing of data symbols. To compensate for this, equalizers needed to be applied to the telephone lines. The automatic adaptive equalizer was invented in 1965 at Bell Laboratories by Robert Lucky. While equalizers had been used for some time, they required human intervention to be adjusted appropriately. With the advent of the automatic adaptive equalizer, data could be transmitted at high rates, as was desired. Modem technology also improved in this time, and by 1980, there existed modems that could transmit up to 14.4 kilobits per second over four-wire leased lines.

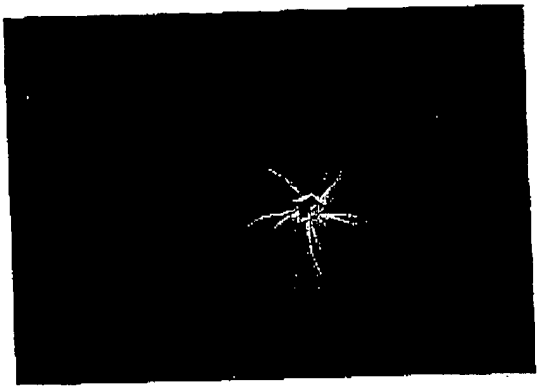
By 1984, modems were to the point of transmitting 9.6 kilobits per second over a single-pair circuit on the telephone system. To make this a reality, advances were made in echo cancellation, which keeps the sending modem from picking up its transmitted signal on its own receiver. This problem, of course, only presented itself when trying to send high speed data over a single circuit. Additionally, a new coded modulation with error correcting codes was developed. This integral error correction made the signal less susceptible to noise.

Using the same sort of technology, modem speeds were increased to 14.4 kilobits per second by 1991. Then, in 1994, it doubled to 28.8 kilobits per second. Soon after, there came 33.6, which was thought to be an upper limit for phone line transmisions. But along came the 56k modem, and a new set of standards, so the speeds continue to push the envelope o the capacity of the telephone system.

Transmission time

It takes time to send information from one place to another. The speed at which information can be sent is measured in number of bits sent in one second. Most modern computers have a modem that can send 56600 bits per second down a telephone line.

Transmission time = Number of bits sent ÷ Transmission rate



If you know how much information is being sent you can work out how long it would take to send it. This image contains 905600 bits.

If this is sent using at 56600bits per second it will take

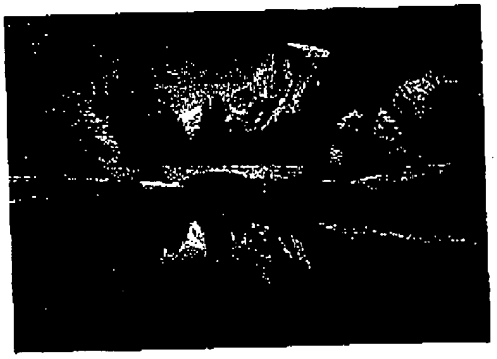
905600 ÷ 56600 = 16seconds

to send.

Questions

This image contains 1188600 bits. If this image is sent at 56600bits per second how long will it take to send the image?

If you have an old modem and can only send the image at 28800 bits per second how long will it now take to send?



This image contains 1415000 bits. If this image is sent at 56600bits per second how long will it take to send the image?

How images of this size can you send in one minute?

~~To get a reasonable~~ quality moving image you need to send about 25 images in one second. How fast would your computer modem need to be to receive good quality moving images?

Cable Datacom News®
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November 1998 Highlights

December Is New Target For First DOCSIS Certification

CableLabs DOCSIS Project Director Rouzbeh Yassini Provides a Status Update in an Exclusive Interview

When Cable Television Laboratories Inc. began the difficult task of testing vendors' cable modem products for interoperability and compliance with the Data Over Cable Service Interface Specification (DOCSIS) standard in the fall of 1997, Rouzbeh Yassini was hired as a consultant to manage the task.

A true cable modem pioneer, Yassini founded LANcity Corp. in 1990, which delivered the first affordable and reliable single-user cable modem to market in 1995. In September 1996, Yassini sold LANcity to Bay Networks Inc. for $59 million. Rather than taking an early retirement, Yassini formed YAS Corp., a broadband technology consultancy, and ultimately accepted CableLabs' formidable DOCSIS assignment.

Engineering snags are typical in the development cycle of any new

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technology and DOCSIS is no exception. DOCSIS product availability has been delayed longer than many MSOs had hoped. However, were it not for Yassini's iron will and supercharged work ethic, delivery dates for quality DOCSIS products would have likely slipped far further.

Vendors have been fighting furiously to gain DOCSIS certification and get a "golden sticker" from CableLabs to use on their retail product packaging.

As it stands now, CableLabs is on track to certify a handful of vendors for DOCSIS compliance in December with more vendors likely to earn approval in the first quarter of 1999.

Seven vendors applied for DOCSIS certification and participated in interoperability testing during "Wave 4," held the week of September 21 at CableLabs. The total increased to ten vendors during "Wave 5" that started on October 26.

Despite the delays, MSOs are starting to see the benefits of DOCSIS in an area that is near and dear to their hearts: product pricing. MSOs are reporting that several vendors are now offering wholesale prices below $250 for high-volume purchases of external two-way DOCSIS 1.0 modems. 3Com's publicly announced retail price of $319 for its DOCSIS modem backs this claim, assuming a 30-percent retail mark up.

CABLE DATACOM NEWS Publisher Michael Harris spoke with Rouzbeh Yassini in late October about the status of the DOCSIS certification process.

A complete transcript of the session is featured in this month's issue.

NEXT STORY

Cable Datacom News is published by Kinetic Strategies Inc., Phoenix, Arizona USA.

DECEMBER 5, 2000

NEWS ANALYSIS

Streaming Video -- on Your Cell Phone?

Korea's Samsung is convinced that consumers will line up for its coming video-phone. Or will it be too much, too soon?

It's the sort of supercool tech toy even Batman would envy -- the world's first streaming-video cell phone. Korean manufacturer Samsung hopes the palm-sized wonder will propel it to a commanding lead over rivals like Nokia, Toshiba, and Motorola, which are anywhere up to six months away from releasing their own versions of the futuristic gizmo.

Imagine the possibilities of a device that, not so long ago, existed only in the imaginations of science-fiction writers. If you attach a camera to the video-phone, you can point it at the Statue of Liberty and beam pictures to relatives anywhere in the world. Need advice about what to buy at the supermarket? Well, just scan the produce counter and ask your spouse at home which tomatoes look best.

With the capability to stream video at data-transfer rates of 144 kilobits per second -- more

B7

than twice as fast as most dial-up modems -- Samsung says its video-phone has the horses to produce respectable video, even with the creaky capabilities of current cell-phone networks. A recent Samsung demonstration of the phone, which was unveiled in late October, lent credence to the claim. Although it did miss some frames, it seemed to work just fine. Even Samsung, however, admits that performance may vary since it is dependent on the equipment, and the traffic levels, in a carrier's network.

Who Will Fastow Implicate?

Intel: Powered Up for Another Hot Year

Mr. O'Neill Goes to Washington

The Key to Wealth? Take It Easy

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IS SMALL BEAUTIFUL? By 2003, spending on cellular services is expected to total $36.9 billion, according to *2000 Multimedia Telecommunications Market Review and Forecast*, from the MultiMedia Telecommunications & Telecommunications Industry Assn. But right now, the video portion of that revenue pie is exactly zero.

So there's a huge potential market for video phones. Right? Well, for the moment, make the answer to that question a definite maybe.

Given the glacial pace at which cell-phone users have taken to surfing the Web, some analysts caution that the omens might not be too auspicious for video-phones -- at least not in the short term. How many customers, they ask, will be prepared to shell out big bucks to view, say, a soap opera or other content lifted from the Web and displayed on a tiny phone screen?

The brains and muscle powering Samsung's video-phone come from Israeli startup GEO Interactive Media, whose software will be inside Nokia's rival model when it's released, probably around the middle of 2001. Sasson Darwish, president of GEO's U.S. operations, isn't worried about leaping into the marketplace ahead of rivals, who might well use those vital extra months to develop more advanced models. According to Samsung and GEO execs, upgrades will be available while other manufacturers are still scrambling to roll out their first video-phones. "The business models are being built now," says Dawish.

POCKET BROADCASTER. Market research has indicated that the public is interested in video-phones. During NTT DoCoMo's recent trials in Japan, potential customers delighted in downloading cartoons from the Web. And tests conducted in June by Sprint and GEO competitor PacketVideo also demonstrated that "consumers love the experience, even with

narrowband," according to James Carol, PacketVideo's CEO and co-founder. "This market is developing -- and it's huge," Carol enthuses. San Diego-based PacketVideo and Samsung have discussed possible collaborations, he says.

Regardless of how market demand evolves, the Samsung video-phone is definitely a cool piece of work. Smaller than the palm of a typical adult hand, the flip phone comes equipped to receive both Internet videos and standard e-mail. With the camera attached to the video-phone, users can send videos to family and friends, colleagues or customers. Samsung officials say the phone could even be used for surveillance in conjunction with Web cams or other monitoring devices.

The gadget, which uses GEO's special video chip, streams video to and from GEO's servers. Samsung is confident it can sell a million units next year in its Korean home market alone, a projection the company regards as a sure indication that it has a major worldwide hit on its hands.

PHONE-FREAK APPEAL. Samsung hasn't announced pricing yet, but the big potential problem is that video-phones will cost way more than regular cell phones, says GartnerGroup senior analyst Sujata Ramnarayan. "I believe the consumer is still price-sensitive," he says. That means Samsung will need to appeal to the sort of high-end phone freaks who put a premium on cool.

But that crowd also values function -- and the existing second-generation (2G) wireless systems "can't support video," says Peter Friedland, senior analyst with W.R. Hambrecht & Co. Third-generation (3G) networks that will be able to handle the high-bandwidth transfers necessary for clean video viewing are not due to come into use for months in Europe and Asia.

In the U.S., where Washington has been slow to stage spectrum auctions, 3G might not arrive for two years or more. Subpar video over current networks could cause customers to hang up on Samsung video-phones. "The video is really, really lousy. People give up after a few times," says Oded Peretz, CEO of Israeli wireless-video startup Celvibe Ltd. Peretz says video jammed over current networks remains so suspect that he doesn't expect to start selling his company's streaming-video applications until 3G networks are in place. Nokia, Toshiba, and Compaq, likewise, are waiting for 3G to get established outside the U.S. before mounting a big video-phone push.

TRAILBLAZER'S REWARD. All of these barriers might translate into weak sales for Samsung and other manufacturers. "It's a hot product, but I don't think it's going to have the biggest sales," says Strategis Group analyst Sylvia Panayi.

Should Samsung's early foray pay off, the company might build a strong video-phone reputation and healthy future sales in what may indeed evolve into a lucrative market. Samsung's reward for trailblazing could be the lion's share of such a market. But for now, this much of the picture remains clear: It's a big risk.

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BACK TO TOP